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Forage Crops in Pork Production

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THE PLACE OF FORAGE CROPS IN PORK PRODUCTION

BY

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THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

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THE PLACE OF FORAGE CROPS IN PORK PRODUCTION.

Introduction.

The custom in many sections of the corn belt is to keep hogs in a dry lot and give them a ration consisting almost entirely of corn through the whole of the fattening period. By the fattening period is meant the time during which hogs are fed and prepared for market. Corn alone for the last few weeks of feeding is the best feed that can be used, but with young hogs where both growth and fat are desired it is better to feed something with the corn. By some farmers the corn is supplemented with shorts.

In order to gain some practical information in feeding the forage crops clover and rape as well as shorts with corn a test was outlined and carried on as given in the following pages.

The object of the experiment was to compare clover, rape and shorts when used as a supplement to corn as a feed for fattening hogs. This is not an entirely new subject but comparatively little data has been collected according to this plan. No data at all has been collected from a test of this nature in our state. In the latter pages of this Thesis will be found some results of feeding tests conducted at Wisconsin, which were with younger pigs and more applicable to growing pigs. A record of the cost as tabulated in table 9 will show whether or not it will pay to pasture hogs on a forage crop while they are being fattened.

Plans of the Experiment.

Pigs.---To make the experiment mean as much as possible it was necessary to buy pigs that had been similarly bred and fed. Sixteen pigs weighing about 155 pounds each and as nearly uniform as possible were secured for this experiment. The pigs were about eight months old when the experiment began. They were grade Poland-Chinas of a good type; none of them were of the long lean type, but a few were somewhat chunky. They had previously been fed on a corn ration and kept in a dry lot hence had never grown in size as they should have done. They were lacking in thriftiness.

Equipments.---The troughs used for the various lots were made of ten inch boards six feet long. These boards were nailed together in the common way thus making a v shaped trough.

No beds were used as it was not thought necessary during the summer months.

Pastures.---Lot No.1 occupied a dry pen of about $\frac{1}{2}$ acre in area with shade trees on the east side of it which furnished protection from the hot sun.

Lot No.2 occupied a similar area except that these pigs were protected from the hot sun by trees on the west side.

Lot No.3 occupied a small pasture of about an acre in area and the pigs were protected from the hot sun by a roof being built out in the pasture. This area furnished more forage than the hogs consumed.

Lot No. 4 occupied a clover pasture of about an acre in area. This lot had similar protection from the hot sun as did lot No.3.

Feed and Feeding.---An accurate account of all the corn and shorts fed was kept. Since the pigs on the clover and rape lots

grazed at will no accurate account could be kept of the forage they ate. This however was determined on a basis of dry matter per given amount of gain made. The dry matter consumed per 100 pounds gain in the corn fed lot, which recieved nothing but corn and water, was determined ; then the gains made by the clover and rape fed lots was over and above that made by the corn fed lot was considered to be due to the clover and rape. The amount of clover and rape consumed was then determined in pounds of dry matter, and from this the amount in pounds of clover and rape eaten. While this is not absolutely correct it will do by way of comparison. We all know that it takes less dry matter per 1 lb. gain where a supplemental feed like clover or rape is added to a ration of corn than where corn alone is fed. This then has the tendency to minimize the effect of clover and the rape.

The corn was fed to each lot twice a day one feed about six o'clock in the morning and the other feed after six o'clock in the evening. Water was given to each lot so that they had ready access to it at all times.

The shorts were soaked several hours before feeding and given at the same time the corn was fed.

The clover was fenced from a field which had been pastured by horses and cattle until July 8th. It was in a very thrifty condition at this time and furnished an abundance of good forage during the whole of the experiment.

The rape was sown at the rate of six pounds per acre on April 15th. The variety used was the Dwarf Essex. Owing to cool damp weather followed by a dry spell it grew very slowly at first but by July 8th. it was in good condition for pasture and furnished more

forage than was consumed by the pigs. The rape was more plentiful at the close of the test than it was at the beginning.

After the four days of preliminary feeding the pigs were weighed out in four lots, each lot containing four pigs. The lots were weighed out on Monday morning July 8th. and weighed each following Monday morning till close of experiment Aug. 19th.

The feeding proper extended over a period of seven weeks during which time the data given in the following tables was collected. The experiment begun July 8th. and ended August 19th. All the Data necessary for a comparison of gains made by the different lots are tabulated, together with tables showing the financial results of the experiment.

Before the experiment proper began all the pigs were put into one pen and fed lightly on corn and water for four days. After this period of preliminary feeding, which was for the purpose of bringing the pigs to a uniform basis for starting, they were separated into four lots as outlined above. The data collected is as follows.

Data.

Table Number 1
Lot 1
Corn and Water.

Time of Wts.	Av.Wt. of Hogs lbs.	Total Wts. lbs.	Lbs.of corn per da.	Daily feed in per cent of live Wt.	Av.daily gain lbs.	Feed for 100 Lbs. gain.
July 8	160.40	802	23.20	3.54		
" 15	170.75	853	23.20	3.39	1.00	580
" 22	179.25	717	27.84	3.11	1.25	443
" 29	186.25	747	27.84	3.72	1.07	519
Aug. 5	195.75	783	27.84	3.55	1.28	541
" 12	200.75	803	27.84	3.46	.74	914
" 19	207.50	820	27.84	3.55	1.00	696
Total	186.35	745	27.84	3.55	1.05	637

Table number 1 shows average weight and total weight of hogs, the amount of corn eaten daily, the daily feed in per cent live weight, average daily gains and feed for 100 pounds gain. The average daily gain of this lot was 1.05 pounds. The average daily feed in per cent of live weight was 3.55. That is each 100 pounds of live hog required 3.55 pounds of corn for his daily ration. It took 6.3[illegible] pounds of corn for each pound of gain or 637 lbs. per 100 pounds gain. Although no large gains were made there was nothing out of the ordinary noticed in this lot. The pigs were started on 5.8 pounds of feed per day which was increased until they were getting 6.96 pounds per day at which amount they were kept. It will be noticed that the largest gains were made at the end of the second week when the pigs were getting the largest amount of feed. At this point their daily feed was 3.88 per cent of their live weight. As the pigs grew in weight the daily feed which remained stationary grew proportionately less and a proportionately greater amount of it was consumed as the food of support.

Table Number 2
Lot 2
Corn and shorts.

Time of Wts.	Av.Wt. of Hogs.lbs.	Total Wts. lbs.	Lbs.of corn per da.	Lbs.of shorts per da.	Daily feed in per cent of live Wt.	Av.daily gain lbs.	Feed for 100 Lbs. gain.
July [illegible]	157.00	628	13.92	6.48	2.1		
" 15	165.00	660	23.20	6.48	4.4	1.14	538
" 22	176.25	705	23.20	6.48	4.2	1.60	360
" 29	182.50	730	23.20	6.48	4.0	.88	649
Aug. [illegible]	192.50	770	23.20	6.48	3.8	1.42	405
" 12	200.00	800	23.20	6.48	3.7	1.03	540
" 19	206.25	825	23.20	6.48	3.4	.81	343
Avg.	182.77	731	22.01	6.48	3.8	1.17	520

The pigs of this lot made larger gains than the ones in lot number 1. They made an average of 1.15 pounds daily, but this extra gain was not large enough to pay for the shorts consumed. The quality however of the pigs was better in this lot than in the corn fed lot, they had a smoother coat of hair and showed a better finish in every way. The difference in quality would have been at least 5 ¢ per 100 pounds which with the extra gain lessened the cost of the pork produced by the lot by $1. The shorts fed to this lot cost $5. The extra price recieved for this lot was not sufficient to pay for the shorts. One pound of pork in the corn and shorts fed lot cost $.062 while in the corn fed lot it cost only $.056. One interesting feature about this lot was their behavior when the shorts were poured in their trough. They would leave the corn and immediately hasten to the shorts. This showed that they were getting in the shorts some substance that was not present to any great extent in the corn, and was much desired by the system. This seems to indicate that a variety of feed is relished most even during the fattening period.

The manure of this lot was more valuable than of the corn fed lot on account of its higher nitrogen content.

While shorts is not always best to finish hogs on for the market, it is true that it is worth much more for growing hogs.

Table Number 3
Lot 3
Corn and Rape.

Time of Wts.	Av.Wt. of Hogslbs.	Total Wts. lbs.	Lbs.of corn per da.	Lbs.of rape per da.	Daily feed in per cent of live Wt.	Av.daily gain. lbs.	Feed for 100 Lbs. gain.
July 8	155.00	620	18.56	44	10.		
" 15	160.00	640	18.56	44	9.7	.714	8196.0
" 22	170.00	680	23.20	44	9.8	1.428	1178.0
" 29	177.75	710	23.20	44	9.4	1.071	1568.0
Aug. 5	187.50	750	27.84	44	9.5	1.428	1257.0
" 12	195.75	783	27.84	44	9.1	1.104	1598.0
" 19	206.00	820	27.84	44	9.7	1.325	1359.0
Avg.	178.85	714	23.83	44	9.7	1.180	1295.0

This lot made good gains throughout the experiment, but the largest and most nearly even gains were made toward the close of the test. The lighter gains at the beginning was probably due to the fact that the pigs were not accustomed to eating rape. At first they did not seem to care for the rape at all, but they soon began eating it as if they relished it. The rape was more plentiful at last than when the experiment began, but at all times there was an abundance of pasture. The average daily gains of this lot was 1.19 lbs. While the gains of this lot were very little higher than for lot 2, they were more economical. The pigs consumed less corn and the rape they ate was of much less value than the shorts consumed by lot 2. The pigs of this lot were in the best of physical condition through the whole of the experiment. The other lots showed no signs of sickness but the clover, rape and shorts lots were in the best condition as was indicated by the loosness of their bowels. The rape lacks in protein content but the gains made were very satisfactory and economical.

Table Number 4
Lot 4
Corn and Clover.

Time of Wts.	Av. Wt. Lbs.	Total Wts. Lbs.	Lbs. of corn per da.	Lbs. of clover per da.	Total feed in per cent of live Wt.	Av. daily gain Lbs.	Feed for 100 Lbs. gain.
July 6	180.	720	18.18	37.4	7.2		
" 13	190.	720	18.18	37.4	7.2	1.71	731
" 22	191.25	735	19.30	37.4	7.4	1.39	889
" 29	202.00	808	27.84	37.4	8.07	1.53	1062
Aug. 5	210.75	843	27.84	37.4	7.7	1.25	1313
" 12	217.75	871	27.84	37.4	7.5	1.00	1841
" 19	227.00	908	27.84	37.4	7.1	1.32	1367
Avg.	199.25	?	23.23	37.4	7.33	1.40	1159

The pigs of this lot made good gains throughout the whole of the experiment. It can be seen from the table that the best gains were made at the beginning of the test. This was probably due to the condition of the clover at this time, which was in full bloom during the period of best gains. During this period the pigs would go along and nip off the clover heads as if there was something especially relishing in them. The clover was not so succulent toward the close of the experiment, but an abundance of good pasture was furnished at all times. This lot made better gains than the preceeding one. This is what one would expect because clover is richer in protein than is rape therefore will make a better ration when fed with corn which is highly carbonaceous.

Table Number 5

Table showing average composition of the feeding stuffs used, percentagely.

Feed.	Dry mat.	Prot.	Ash.	Crude Fiber	Nit.free Extract	Ether Extract	Nutritive Ratio.
Corn	88.4	10.3	1.5	2.2	73.4	5.	1:8.7
Shorts	92.2	14.9	4.3	7.4	53.9	4.7	1:5
Rape	15.5	2.3	2.	2.3	6.4	.7	1:5.3
Clover	29.2	4.4	2.1	7.1	13.5	1.1	1:7.5

Table Number 6

Table showing composition of total feeds used in pounds.

Lot No.	Feed	Dry mat.	Amt. feed.	Ash.	Prot.	Crude fiber.	Nit. free extract	Ether extract
1	Corn	1131.80	[illegible]	[illegible]	[illegible]	27.[illegible]5	[illegible]1.12	[illegible]
2	Corn	1020.05	1141	17.11	117.5[illegible]	25.10	[illegible]	57.05
	Shorts	[illegible]	[illegible]	1[illegible].40	[illegible]	[illegible]	227.20	[illegible]
	Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1030.4[illegible]	75.05
3	Corn	[illegible]	[illegible]	[illegible]	11[illegible].10	[illegible]	[illegible]16.71	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Total	109[illegible].0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	Corn	[illegible]	11[illegible]4	[illegible]	113.71	[illegible]	[illegible]	[illegible]
	Clover	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.15
	Total		[illegible]	54.57	194.[illegible]1	172.[illegible]	10[illegible].77	75.[illegible]5

Table number 5 shows the average composition of the feeding stuffs used in the experiment. From these compositions table number 6 has been computed and it shows the total composition in pounds.

The amount of clover and rape was calculated from the dry matter required to make 100 lbs. gain in the corn fed lot. Each 100 lbs. gain was calculated to require the same amount of dry matter as was required in the corn and water fed lot. The amount of corn fed in each case was known. Then the total dry matter in terms of corn was computed and the difference between the dry matter of the corn fed and the total dry matter is the dry matter in terms of clover or rape as the case may be. When the dry matter has been obtained the amount of clover and rape was calculated from that.

Table Number 7

Table showing digestible nutrients in feeding stuffs of the experiment, percentagely.

Feed	Dry mat.	Prot.	Carbohydrates	Ether extract	
Corn	91.0	76.0	66.7	86.0	
Shorts	88.2	71.1	77.1	2.2	
Rape	15.5	35.2	78.3	40.1	
Clover	29.2	35.1	38.5	46.7	

Table Number 8

Table showing total digestible nutrients of feed used in pounds.

Lot	Feed	Total feed.	Dry mat.	Prot.	Carbohydrates.	Ether extract.	Nutritive Ratio.
1	Corn	1266	1080.12	[illegible]	818.65	54.40	1:7.6
2	Corn	1141	926.20	89.31	552.51	48.9[illegible]	
	Shorts	400	339.12	48.54	199.78	14.74	
		1541	1297.32	137.85	752.29	63.70	1:5.5
3	Corn	1009	869.66	[illegible]3.87	538.00	[illegible]8.38	
	Rape	2139	51.02	39.49	170.17	4.20	
	Total	3228	920.68	110.16	738.17	59.98	1:7.8
4	Corn	1104	939.97	93.41	594.40	57.44	
	Clover	1[illegible]32	584.44	120.72	270.[illegible]	13.[illegible]	
	Total	2[illegible]36	1521.41	207.13	865.23	71.37	1:[illegible]

Table number 7 shows the relative digestible nutrients in the feeding stuffs of this experiment. From this table the amount in pounds of the digestible nutrients has been determined as shown in table 8. The nutritive ratio for each lot is also shown.

Table Number 9

Table showing summary of results.

	Lot 1	Lot 2	Lot 3	Lot 4
	Corn 1266	Corn 1141	Corn 1068	Corn 1104
	Water	Shorts 400	Rape 2138	Clover 1832
Total feed consumed. pounds.	1266	1541	3238	2936
Total gain in lbs.	175	197	200	203
Average daily gains.	1.05	1.17	1.19	1.49
Lbs.of feed consumed daily.	26.40	30.55	67.80	60.66
Daily feed in per cent of live Wt.	3.75	3.69	6.70	7.29
Dry matter in daily feed lbs.	23.30	20.77	27.70	33.58
Feed consumed for 100 lbs. gain in lbs.	737	780	1605	1179
Dry matter consumed for 100 lbs.gain in lbs.	570	441	612	469
Loss sustained on actual market.	1.85	$7.38	$2.41	$1.46
Possible profit on Stationary market.	$2.45	-.58	$4.66	$6.55

This table shows a summary of results necessary for comparison. It shows the total feed consumed, total gain in pounds, average daily gain, pounds of feed consumed daily, daily feed in per cent of live weight, dry matter in daily feed, feed consumed for 100 pounds gain, loss sustained on actual market, and possible profit on a stationary market. The total feed consumed was greater with the rape lot, this is true because of the amount of dry matter being less in rape than it is in clover. The clover lot consumed next highest amount of feed. The total feed in both these lots is probably too high on account of the way the amount of rape and clover was determined. In lot 1 and 2 the feed was of more concentrated nature and required less to make the gains. The rape and clover being fed green.

The total gain shows an increase from the corn to corn an clover lot of 61 pounds. Lot 2 and 3 made nearly the same gains which is discussed in the conclusions.

The pounds of feed consumed daily and the daily feed in per cent of live weight vary as does the total amount of feed consumed.

The dry matter in the daily feed shows that lot 1 recieved more dry matter per day than did lot 2 which was fed corn and shorts.

The feed consumed for 100 pounds gain was less in the corn and shorts fed lot than in any other lot and greatest in the corn and rape fed lot. In the corn and rape, and corn and clover lots the amount of feed consumed for 100 pounds gain is pretty high, but these two lots ate the rape and clover green which is largely composed of water. This and the fact that the estimated amount of rape and clover is high is the reason for the large amount of feed.

The dry matter for 100 pounds gain varies as does the amount of feed for 100 pounds gain.

The loss sustained on actual market was greatest in lot 2 fed for corn and shorts and least in lot 4 fed corn and clover. The reason these variations in losses is accounted for in the conclusions.

Possible profit on stationary market shows how much profit could have been made had the market price not dropped lower than that for which the hogs were bought. This shows the corn and shorts lot to lose $ .58 even on a stationary market. The corn and clover lot would have made the best profit. The corn and rape second and the corn alone third.

Table Number 10

Table showing financial comparison of the different lots.

Lot No.	Wt. at outset lbs.	Cost per lb. at outset.	Cost of feed.	Value of Pigs at outset.	Value at beginning and cost of feed to fatten.	Wt. at close lbs.	Value per lb. at close.	Value at close. Pigs & Feed.	Loss
1	855	$.0603	$ 9.10	$39.49	$ 47.59	930	.0517	42.23	4.65
2	825	.0603	10.15	37.83	50.31	925	.0515	42.49	7.82
3	972	.0603	7.20	40.52	47.21	908	.0515	46.75	1.46
4	880	.0603	7.46	37.39	44.84	830	.0515	42.43	2.41

While experimentally this piece of work was successful the financial side of this experiment was not a success as is shown by the table number 10. The total loss was $16.65. Every opposing condition possible presented itself, which of course could not be prevented.

The pigs in the beginning cost $6.03 per hundred pounds, and when sold they brought only $5.15 per hundred pounds. The corn that was fed was worth 45¢ per bushel, and the shorts used cost $1.25 per hundred pounds. If the pigs could have been sold for as much as they cost there would have been a nice profit in feeding them. Or as is generally the case, pigs at this age should not have cost as much in proportion as the hog when fattened. Considering this to be true the profit would have been still larger. While the financial part of of the feeding test was somewhat of a failure the data collected is very satisfactory.

Table Number 11

Table showing the financial results
on a stationary market.

Lot No.	No.of Hogs.	Cost price.	Selling price.	Gain in pounds.	Value of gain.	Cost of feed.	Profit.	Loss.
1	4	$47.59	50.04	175	10.55	[illegible].10	$2.45	
2	"	50.31	49.74	197	11.87	12.45		$--.57
3	"	44.84	49.44	200	12.00	7.40	4.60	
4	"	48.21	54.75	230	14.23	7.68	6.55	

This table shows that on a stationary market every lot would have made a good profit except the corn and shorts fed lot. On this kind of a market the four lots would have made a profit of $13.05.

Conclusions.

Lot number 1 the corn and water fed lot made good gains considering the conditions; good enough that ordinarily the lot would have made a good profit. This is the common way of feeding hogs in the corn belt and in many cases no doubt a loss of money is the result if an accurate account of all the expense were kept. As has been said the pigs had been grown principally on a corn ration, this is perhaps a reason that no larger gains were made. In each case where the feed was changed from what the pigs had been used to recieving a greater increase in gain was recieved. This extra gain no doubt was largely due to the kind of feed recieved and the change of feed.

The lot fed corn and shorts caused a financial loss, greater than any other lot. This financial loss was not due to a smaller gain than in lot number 1 fed on corn, but because it cost so much more to make the extra gain. From these results shorts would not be a practical feed for fattening hogs at the price paid for the same, but it may be practical to feed them to growing hogs.

Lot number 3 fed on corn and rape made good gains, these gains were next to those of lot 4 fed on corn and clover. Since rape is as good a forage crop for hogs as is shown by this experiment it can be profitably used for hog pasture. It may be sown at different intervals through the growing season and in this way a continuous succulent pasture may be secured. The rape should not be pastured too close and to prevent doing this it is a good plan to have more than one rape pasture and when one begins to be pastured pretty short, turn the hogs in the other field until the first one has had a chance to grow up again. The hogs that were on the rape were in a very fine

physical condition, and at no times showed any indications of scouring. The rape apparently is what kept the hogs in such good condition. While the financial side of this lot was not a success, owing to prices paid for the hogs and feed, the data including gains was very satisfactory. The rape is low in protein content and for the best results when fed to hogs should be supplemented by some feed rich in protein.

Lot number 4, the lot fed corn and clover made the largest and cheapest gains. Clover is a crop that can be easily grown in nearly all sections of the corn belt and it certainly furnishes the best pasture for hogs unless alfalfa is better. Clover is twice as rich in nitrogen as is rape. It has 4.4% protein and rape has 2.3%.

From a standpoint of fertility to the soil, the clover adds nitrogen which is collected from the air. Excrement from the hogs eating clover will be much higher in nitrogen content than that from hogs eating rape. Rape has very little fertilizing value as it is so largely composed of water. When pastured the excrement will all be left on the field and the soil will be benefited from this fact rather than injured. The excrement however from hogs feeding on rape is sure to be lower in nitrogen content than that from those grazing on clover. Since clover has the power of adding nitrogen to the soil thus doing much to keep up its fertility there is no doubt but that clover is a more practical pasture than is rape. But in case of a failure of clover rape certainly is a close second for hog pasture.

The Feeding value of Rape as Shown by Experiment at the Wisconsin Station.

Two lots of pigs of ten each were used in this test. Lot 1 had rape in connection with grain. The latter feed was composed of two parts corn and one part shorts. Lot 2 recieved grain only. The lots were kept at as nearly the same weight as possible, as it was thought that this was the best way to obtain the true feeding value of rape. Results in the table below show that the lot on rape ate the rape from one third acre of land, and required 710 pounds less corn and 352 pounds less of shorts than did lot number 2 which recieved no rape. The amount of rape eaten in this case was equivalent to 1062 lbs. of grain per .32 acre of rape.

An acre of rape under these conditions would result in a saving of 3318 lbs. of grain.

Rape compared with grain at Wisconsin.

Lot.	Lbs.of Corn.	Lbs.of Shorts.	Rape.Acres.	Gain.lbs.
1	1386	690	.22Acres.	953
2	2096	1042		857
Dif.in favor lot 1.	710	352		

Another experiment was conducted at Wisconsin in which clover and rape were compared as a feed for young growing pigs. In this experiment 42 pigs were used, in two lots of 21 each. The pigs averaged about 100 lbs in weight. The grains used here were the same in kind and quantity as for the above lot, composed of one third middlings and two thirds corn meal by weight. The feed was mixed with water twelve hours before feeding and allowed to soak.

Lot 1 was kept on fresh growing rape by means of a portable fence. Lot 2 had a range of about 8 acres of clover, affording them good pasture at all times.

The rape fed lot thrived best the first part of the test as the rape was in the best growing condition at that time. It later grew hard and woody. The clover from the effects of the fall rains was refreshed and good pasture was furnished at all times throughout the entire test giving it the advantage at the close.

Lot 1, rape with corn meal and middlings.
Table showing gains in two week
periods at Wisconsin.

Week.	Corn meal. lbs.	Middlings. lbs.	Total weights at beginning and close lbs.	Total gain. lbs.
1.	350	325	2139	429
4.	770	375		381
6.	910	485		354
8.	980	490		348
Total.	3310	1650	3691	1492

Lot 2, Clover, corn meal and middlings.
Table showing gains in two week
periods at Wisconsin.

Week.	Corn meal. lbs.	Middlings. lbs.	Total weights at beginning and close lbs.	Total gain. lbs.
1.	350	325	2137	347
4.	770	385		358
6.	910	475		350
8.	980	490		375
Total.	3310	1655	3572	1435

Summary of table 1 and 2.

	No.1	No.2
Wt. of pigs at beginning. lbs.	2139	2138
Wt. of pigs at close. lbs.	3321	3573
Grain eaten one third shorts two thirds corn meal. lbs.	4969	4965
Total gain made. lbs.	1482	1435
Average gain made by each pig during Exp. lbs.	7105	6833
Average daily gain per pig. lbs.	1.27	1.22
Average daily gain per pig for first four weeks. lbs.	1.333	1.193
Average daily gain per pig for last four weeks. lbs.	1.193	1.247

In a similar experiment to the one above the next year these results were reversed. When the feeding was begun the rape was small but later grew to be very succulent. While the clover was better when the feeding begun than it was later. Then it will be seen that much depends on the condition of the pasture.

A Wisconsin experiment where only Rape was used as a feed to show loss or gain in pounds.

Date of Weighing.	Individual numbers of pigs.																	Total.
	101.	43.	33.	24.	39.	100.	9.	23.	21.	22.	27.	13.	99.	30.	44.	35.	57.	20.	
	Individual weights and gain or loss in pounds.																	
Nov. 7&8	137	153	152	109	172	196	196	143	158	166	186	211	156	119	157	155	185	170	2978
" 15	141	156	153	171	169	195	195	143	159	168	187	213	153	112	161	155	180	171	
" 21	139	153	152	163	168	192	194	140	154	167	183	211	155	121	150	152	181	170	2950
	+1	0	0	+1	-4	-4	-2	-3	-2	+1	-3	0	-1	+2	+7	-3	-4	0	-28

Date of Wt.	Individual numbers of pigs.																	Total.
	88.	19.	44.	13.	46.	93.	59.	96.	98.	51.	41.	54.	12.	55.	95.	17.	38.	97.	
	Individual weights and gain or loss in pounds.																	
Nov. 7&8	130	174	179	133	150	138	128	195	204	120	163	116	189	111	140	166	162	184	2813
" 15	130	172	181	136	149	136	128	198	205	120	162	119	188	114	140	170	162	182	
" 21&22	125	170	179	131	148	127	124	190	199	122	163	116	184	113	139	170	155	183	2779
	-5	-4	-1	-2	-2	-1	-4	-5	-5	+2	0	0	-4	+2	-1	+4	-7	-3	-32

Notes on Rape Experiment.

The pigs previous to this experiment had been fed on different diets. There were 36 pigs in all. Six of them had been fed on an exclusive grain diet for eleven weeks. Eight had been recieving corn and clover and the other 22 grain and rape. They were allowed to run in the rape for 3 days and then an initial weight was taken. The pigs were noticed feeding nearly all day, also that they were very well contented never showing signs of hunger. The pigs were weighed a week later Nov. 15 and the final weights taken Nov. 22

The total loss for the 36 pigs was 60 pounds or one and two third pounds each. The six pigs that had previously been fed on an exclusive grain diet immediately upon being turned into rape lost 18 pounds or 3 pounds each. The eight which had a mixed grain diet lost 19 pounds or two and one third pounds each, and the 22 that had recieved grain and rape lost a total of 33 pounds or one and one half pounds each. This shows that rape when not fed in conjunction with other feeds is rather poor in feeding value.

A Comparison of results of an experiment which was carried on at Wisconsin, similar in nature to the one at Illinois.

	No.of hogs.	Total feed.	Total gain.	Daily gain. lbs.
Wisconsin.	21	3885	1403	1.25
Illinois.	4	3238 #	200	1.18

The total feed here includes an estimate of the rape eaten an amount of 2169 lbs. The amount of corn consumed was 1069 lbs.

In the Wis. trial rape is not included in total feed.

In the experiment at Wisconsin, Middlings were fed in conjunction with the corn and the pigs allowed to run on rape pasture, at Ill. rape and corn was fed. The Wisconsin test shows better results from the rape than does the Illinois test. The reason for this difference is probably due to the middlings which gave them more protein.

Test Where Clover Was Used.

	No.of hogs.	Total feed. lbs.	Total gain. lbs.	Daily gain. lbs.
Wisconsin.	21	4965	1435	1.21
Illinois.	4	2936 #	208	1.40

The total feed includes an estimate of 1832 lbs. for clover consumed. The amount of corn fed was 1104 lbs. In the Wis. trial the rape is not counted in total feed.

In the experiment at Wisconsin, middlings were fed in conjunction with the corn and pigs allowed to run on clover pasture, at Ill. corn and clover was fed. The Illinois test shows higher results from the clover and corn than does the Wisconsin experiment where middlings were fed with the corn and clover. This difference is perhaps due to the difference in age and size of the pigs at the beginning of the test. The pigs in the beginning of the Wisconsin experiment averaged 100 pounds and those in the Illinois experiment 155 pounds.